

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	02/09/2013
State:	California
County:	Los Angeles Offshore
API Number:	04-237-29974
Operator Name:	Thums Long Beach Co
Well Name and Number:	C-240
Longitude:	-118.13738
Latitude:	33.74002
Long/Lat Projection	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	5,821
Total Water Volume (gal)*:	194,838

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	73.24771%	
Superset-W, 330 gal tote	Baker Hughes	Activator	Methanol	67-56-1	50.00%	0.08742%	
			Poly (Oxyethylene) Nonylphenol Ether	9016-45-9	50.00%	0.08742%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00030%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00060%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00006%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00006%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00357%	
			Magnesium Chloride	7786-30-3	5.00%	0.00030%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00060%	
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00400%	SmartCare Product
			Water	7732-18-5	97.00%	0.12946%	
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	60.00%	0.00568%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	30.00%	0.00284%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.54169%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00903%	
			Water	7732-18-5	60.00%	0.54169%	
XLW-56, 330 gal tote	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.04870%	
			Glyoxal	107-22-2	30.00%	0.14611%	
			Sodium Hydroxide	1310-73-2	5.00%	0.02435%	

			Sodium Tetraborate	1330-43-4	10.00%	0.04870%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.03143%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.03143%	
			Guar Gum	9000-30-0	60.00%	0.37722%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.03143%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.18861%	
			Petroleum Distillates	64742-47-8	30.00%	0.18861%	
Super LC, 16/30	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00235%	
			P/F Resin	9003-35-4	5.00%	1.17691%	
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	22.83203%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.04422%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.08843%	
			Water	7732-18-5	50.00%	0.07369%	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
			2-Butoxy-1-Propanol	15821-83-7		0.0005029565%	
			Cured Acrylic Resin	Trade Secret		0.0028405961%	
<p>* Total Water Volume sources may include fresh water, produced water, and/or recycled water</p> <p>** Information is based on the maximum potential for concentration and thus the total may be over 100%</p> <p>Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)</p>							

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	02/14/2013
State:	California
County:	Los Angeles Offshore
API Number:	04-237-27461
Operator Name:	Thums Long Beach Co
Well Name and Number:	B-532
Longitude:	-118.15905
Latitude:	33.75213
Long/Lat Projection	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	5,771
Total Water Volume (gal)*:	146,160

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	72.59944%	
Superset-W, 330 gal tote	Baker Hughes	Activator	Methanol	67-56-1	50.00%	0.10487%	
			Poly (Oxyethylene) Nonylphenol Ether	9016-45-9	50.00%	0.10487%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00021%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00043%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00004%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00004%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00257%	
			Magnesium Chloride	7786-30-3	5.00%	0.00021%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00043%	
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00384%	SmartCare Product
			Water	7732-18-5	97.00%	0.12431%	
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	60.00%	0.00536%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	30.00%	0.00268%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.55271%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00921%	
			Water	7732-18-5	60.00%	0.55271%	
XLW-56, 330 gal tote	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.05082%	
			Glyoxal	107-22-2	30.00%	0.15246%	
			Sodium Hydroxide	1310-73-2	5.00%	0.02541%	

			Sodium Tetraborate	1330-43-4	10.00%	0.05082%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.03141%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.03141%	
			Guar Gum	9000-30-0	60.00%	0.37696%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.03141%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.18848%	
			Petroleum Distillates	64742-47-8	30.00%	0.18848%	
Super LC, 16/30	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00241%	
			P/F Resin	9003-35-4	5.00%	1.20553%	
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	23.38728%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.04499%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.08999%	
			Water	7732-18-5	50.00%	0.07499%	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
			2-Butoxy-1-Propanol	15821-83-7		0.0005026165%	
			Cured Acrylic Resin	Trade Secret		0.0026808082%	
* Total Water Volume sources may include fresh water, produced water, and/or recycled water							
** Information is based on the maximum potential for concentration and thus the total may be over 100%							
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)							

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	12/02/2012
State:	California
County:	Los Angeles Offshore
API Number:	04-237-27460
Operator Name:	Thums Long Beach Co
Well Name and Number:	B-530
Longitude:	-118.15903
Latitude:	33.75213
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	5,254
Total Water Volume (gal)*:	159,684

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	73.12626%	
Superset-W, 330 gl tote	Baker Hughes	Activator	Methanol	67-56-1	50.00%	0.10169%	
			Poly (Oxyethylene) Nonylphenol Ether	9016-45-9	50.00%	0.10169%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00028%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00056%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00006%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00006%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00336%	
			Magnesium Chloride	7786-30-3	5.00%	0.00028%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00056%	
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00387%	SmartCare Product
			Water	7732-18-5	97.00%	0.12527%	
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	60.00%	0.00494%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	30.00%	0.00247%	
BC-3	Baker Hughes	Breaker Catalyst	No Hazardous Ingredients	Trade Secret	100.00%	0.00934%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.32315%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00539%	

			Water	7732-18-5	60.00%	0.32315%	
XLW-56, 330 gal tote	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.02393%	
			Glyoxal	107-22-2	30.00%	0.07180%	
			Sodium Hydroxide	1310-73-2	5.00%	0.01197%	
			Sodium Tetraborate	1330-43-4	10.00%	0.02393%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.03120%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.03120%	
			Guar Gum	9000-30-0	60.00%	0.37435%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.03120%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.18717%	
			Petroleum Distillates	64742-47-8	30.00%	0.18717%	
Super LC, 16/30	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00242%	
			P/F Resin	9003-35-4	5.00%	1.20948%	
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	23.46385%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.04407%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.08813%	
			Water	7732-18-5	50.00%	0.07344%	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
			2-Butoxy-1-Propanol	15821-83-7		0.0004991294%	
			Acetyl Triethyl Citrate	77-89-4		0.0093425364%	
			Cured Acrylic Resin	Trade Secret		0.0024715705%	
<p>* Total Water Volume sources may include fresh water, produced water, and/or recycled water</p> <p>** Information is based on the maximum potential for concentration and thus the total may be over 100%</p> <p>Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)</p>							

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	7/31/2012
State:	CA
County:	Los Angeles
API Number:	04-237-27334
Operator Name:	THUMS Long Beach Co.
Well Name and Number:	J-149
Longitude:	-118.194303506
Latitude:	33.752168831
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	4,051
Total Water Volume (gal):	30,492

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Super LC	BHI	Proppant	Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	88.75938%	
			Phenol Formaldehyde Resin	9003-35-4	5.00%	4.57523%	
			Hexamethylenetetramine	1009-7-0	0.01%	0.00915%	
GW-3LDF	BHI	Gellant	Petroleum Distillate Blend	CBI	70.00%	1.56916%	SmartCare Product
			Guar Gum	9000-30-0	40.00%	0.89666%	
XLW-56	BHI	Crosslinker	Glyoxal	107-22-2	30.00%	0.33643%	
			Sodium Tetraborate	1330-43-4	10.00%	0.11214%	
			Sodium Hydroxide	1310-73-2	5.00%	0.05607%	
			D-Glucitol	50-70-4	10.00%	0.11214%	
BF-7L	BHI	Buffer	Potassium Carbonate	584-08-7	50.00%	0.73381%	SmartCare Product
Enzyme G-I	BHI	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.01952%	SmartCare Product
			Water	7732-18-5	97.00%	0.63130%	
GasFlo G	BHI	Surfactant	Methanol	67-56-1	30.00%	0.19665%	SmartCare Product
			Surfactants	CBI	60.00%	0.39331%	
			Water	7732-18-5	70.00%	0.45886%	
High Perm CRB	BHI	Breaker	Ammonium Persulphate	7727-54-0	100.00%	0.02645%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	15.00%	0.00397%	
GBW-5	BHI	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.02645%	SmartCare Product

Superset-W	BHI	Activator	Methanol	67-56-1	50.00%	0.52705%	
			Poly (Oxyethylene) Nonylphenol Ether	9016-45-9	50.00%	0.52705%	
X-Cide 207	BHI	Biocide	5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00317%	
			2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00159%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00317%	
			Magnesium Chloride	7786-30-3	5.00%	0.00159%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.01905%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00032%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00032%	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	10/29/2012
State:	California
County:	Los Angeles Offshore
API Number:	04-237-20513
Operator Name:	Thums Long Beach Co
Well Name and Number:	B-427
Longitude:	-118.15831
Latitude:	33.75207
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	6,042
Total Water Volume (gal)*:	156,366

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	65.71516%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00018%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00036%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00004%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00004%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00218%	
			Magnesium Chloride	7786-30-3	5.00%	0.00018%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00036%	
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00388%	SmartCare Product
			Water	7732-18-5	97.00%	0.12556%	
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	60.00%	0.00529%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	30.00%	0.00265%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.53208%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00887%	
			Water	7732-18-5	60.00%	0.53208%	
XLW-56, 330 gal tote	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.04727%	
			Glyoxal	107-22-2	30.00%	0.14181%	
			Sodium Hydroxide	1310-73-2	5.00%	0.02364%	

			Sodium Tetraborate	1330-43-4	10.00%	0.04727%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.03133%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.03133%	
			Guar Gum	9000-30-0	60.00%	0.37596%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.03133%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.18798%	
			Petroleum Distillates	64742-47-8	30.00%	0.18798%	
Carbolite, 16/20	Baker Hughes	Proppant	Mullite	1302-93-8	85.00%	19.28069%	
			Silica Crystalline-Cristobalite	14464-46-1	20.00%	4.53663%	
			Silicon Dioxide, amorphous as glass	7631-86-9	35.00%	7.93911%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.04406%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.08812%	
			Water	7732-18-5	50.00%	0.07343%	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
			2-Butoxy-1-Propanol	15821-83-7		0.0005012828%	
			Cured Acrylic Resin	Trade Secret		0.0026462512%	
<p>* Total Water Volume sources may include fresh water, produced water, and/or recycled water</p> <p>** Information is based on the maximum potential for concentration and thus the total may be over 100%</p> <p>Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)</p>							

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	8/21/2012
State:	California
County:	Los Angeles Offshore
API Number:	04-237-27278
Operator Name:	Thums Long Beach Co
Well Name and Number:	C-252
Longitude:	-118.137054443
Latitude:	33.739616394
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	10,049
Total Water Volume (gal)*:	182,154

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	82.65210%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00013%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00026%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00003%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00003%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00157%	
			Magnesium Chloride	7786-30-3	5.00%	0.00013%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00026%	
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00525%	SmartCare Product
			Water	7732-18-5	97.00%	0.16989%	
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	60.00%	0.00653%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	30.00%	0.00327%	
Caustic Liquid, 25% Solution	Baker Hughes	Buffer	Sodium Hydroxide	1310-73-2	25.00%	0.00312%	
			Water	7732-18-5	75.00%	0.00937%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.58546%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00976%	
			Water	7732-18-5	60.00%	0.58546%	
XLW-56, 330 gal	Baker	Crosslinker	D-Glucitol	50-70-4	10.00%	0.05459%	

tote	Hughes						
			Glyoxal	107-22-2	30.00%	0.16376%	
			Sodium Hydroxide	1310-73-2	5.00%	0.02729%	
			Sodium Tetraborate	1330-43-4	10.00%	0.05459%	
Econoprop, 30/50	Baker Hughes	Proppant	Mullite	1302-76-7	70.00%	11.33005%	
			Silicon Dioxide (Crystalline)	60676-86-0	25.00%	4.04645%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.06159%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.12317%	
			Water	7732-18-5	50.00%	0.10264%	

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

			Crystalline Silica: Cristobalite	14464-46-1			
			Cured Acrylic Resin	Trade Secret		0.0032652388%	
			Silica	7631-86-9			

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	02/24/2012
State:	California
County:	Los Angeles Offshore
API Number:	04-237-27206
Operator Name:	OXY LONG BEACH INC
Well Name and Number:	C344
Longitude:	-118.138674
Latitude:	33.739378
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	6,521
Total Water Volume (gal)*:	62,202

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	61.91892%	
Superset-W, 330 gl tote	Baker Hughes	Activator	Methanol	67-56-1	50.00%	0.07157%	
			Poly (Oxyethylene) Nonylphenol Ether	9016-45-9	50.00%	0.07157%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00014%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00029%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00003%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00003%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00172%	
			Magnesium Chloride	7786-30-3	5.00%	0.00014%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00029%	
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00657%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00750%	SmartCare Product
			Water	7732-18-5	97.00%	0.24236%	
BC-3	Baker Hughes	Breaker Catalyst	No Hazardous Ingredients	Trade Secret	100.00%	0.00564%	
BF-7L, Tote	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.15173%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00253%	
			Water	7732-18-5	60.00%	0.15173%	

XLW-56, 330 gal tote	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.01726%	
			Glyoxal	107-22-2	30.00%	0.05177%	
			Sodium Hydroxide	1310-73-2	5.00%	0.00863%	
			Sodium Tetraborate	1330-43-4	10.00%	0.01726%	
XLW-32, 260 gal tote	Baker Hughes	Crosslinker	Boric Acid (H3BO3)	10043-35-3	30.00%	0.00135%	
			Methanol	67-56-1	60.00%	0.00270%	
			Methyl Borate	121-43-7	30.00%	0.00135%	
GW-3LDF	Baker Hughes	Gelling Agent	Acyclic Hydrocarbon Blend	Trade Secret	60.00%	0.35442%	SmartCare Product
			Alcohols, C12-14, Ethoxylated Propoxylated	68439-51-0	5.00%	0.02954%	
			Crystalline Silica, Quartz	14808-60-7	5.00%	0.02954%	
			Guar Gum	9000-30-0	60.00%	0.35442%	
Super LC, 16/30	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00355%	
			P/F Resin	9003-35-4	5.00%	1.77413%	
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	34.41819%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.03843%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.07687%	
			Water	7732-18-5	50.00%	0.06406%	

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

			Acetyl Triethyl Citrate	77-89-4		0.0056411719%	
			Isotridecanol, Ethoxylated (TDA-6)	9043-30-5		0.0295352061%	
			Isotridecanol, Ethoxylated (TDA-9)	9043-30-5		0.0295352061%	
			Quaternary Ammonium Compounds bis[Hydrogenated Tallow Alkyl] Dimethyl Salts With Bentonite	68953-58-2		0.0295352061%	
			Water	7732-18-5		0.0295352061%	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	2/26/2011
State:	CA
County:	Los Angeles
API Number:	04-237-27149
Operator Name:	Occidental (OXY)
Well Name and Number:	C-349
Longitude:	-118.137813
Latitude:	33.739319
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	6,292
Total Water Volume (gal)*:	91,186

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	75.86803%	
Super LC	BHI	Proppant	Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	20.75130%	
			Phenol Formaldehyde Resin	9003-35-4	5.00%	1.06965%	
			Hexamethylenetetramine	1009-7-0	0.01%	0.00214%	
Potassium Chloride	BHI	Clay Control	Potassium Chloride	7447-40-7	100.00%	0.01259%	
BF-7L	BHI	Buffer	Potassium Carbonate	584-08-7	50.00%	0.20739%	
Enzyme G-I	BHI	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00419%	
			Water	7732-18-5	97.00%	0.13549%	
GBW-5	BHI	Breaker	Ammonium Persulfate	7727-54-0	99.00%	0.04010%	
GW-3LDF	BHI	Gellant	Petroleum Distillate Blend	CBI	70.00%	0.35699%	
			Guar Gum	9000-30-0	40.00%	0.20399%	
High Perm CRB	BHI	Breaker	Ammonium Persulphate	7727-54-0	100.00%	0.00705%	
			Crystalline Silica Quartz	14808-60-7	15.00%	0.00106%	
Inflo 250W	BHI	Surfactant	Surfactants	CBI	80.00%	0.11506%	
			2-Butoxyethanol	111-76-2	20.00%	0.02876%	
			Methanol	67-56-1	30.00%	0.04315%	
Superset W	BHI	Activator	Methanol	67-56-1	40.00%	0.03600%	

			Nonyl phenyl polyethylene glycol ether	9016-45-9	60.00%	0.05400%	
XLW-32	BHI	Crosslinker	Methanol	67-56-1	90.00%	0.03609%	
			Boric Oxide	1303-86-2	20.00%	0.00401%	
XLW-56	BHI	Crosslinker	Glyoxal	107-22-2	30.00%	0.06562%	
			Sodium Tetraborate	1330-43-4	10.00%	0.02187%	
			Sodium Hydroxide	1310-73-2	5.00%	0.01094%	
			D-Glucitol	50-70-4	10.00%	0.02187%	
X-Cide 207	BHI	Biocide	5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00032%	
			2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00016%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00032%	
			Magnesium Chloride	7786-30-3	5.00%	0.00016%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00190%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00003%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00003%	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	02/19/2012
State:	California
County:	Los Angeles Offshore
API Number:	04-237-23691
Operator Name:	OXY LONG BEACH INC
Well Name and Number:	C-648
Longitude:	-118.139783
Latitude:	33.739643
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	6,008
Total Water Volume (gal)*:	132,384

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	79.37593%	
Superset-W, 330 gl tote	Baker Hughes	Activator	Methanol	67-56-1	50.00%	0.09440%	
			Poly (Oxyethylene) Nonylphenol Ether	9016-45-9	50.00%	0.09440%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00016%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00032%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00003%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00003%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00190%	
			Magnesium Chloride	7786-30-3	5.00%	0.00016%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00032%	
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00683%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00680%	SmartCare Product
			Water	7732-18-5	97.00%	0.21996%	
BC-3	Baker Hughes	Breaker Catalyst	No Hazardous Ingredients	Trade Secret	100.00%	0.01767%	
BF-7L, Tote	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.11344%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00189%	
			Water	7732-18-5	60.00%	0.11344%	

XLW-56, 330 gal tote	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.02704%	
			Glyoxal	107-22-2	30.00%	0.08112%	
			Sodium Hydroxide	1310-73-2	5.00%	0.01352%	
			Sodium Tetraborate	1330-43-4	10.00%	0.02704%	
XLW-32, 260 gal tote	Baker Hughes	Crosslinker	Boric Acid (H3BO3)	10043-35-3	30.00%	0.00261%	
			Methanol	67-56-1	60.00%	0.00521%	
			Methyl Borate	121-43-7	30.00%	0.00261%	
GW-3LDF	Baker Hughes	Gelling Agent	Acyclic Hydrocarbon Blend	Trade Secret	60.00%	0.36543%	SmartCare Product
			Alcohols, C12-14, Ethoxylated Propoxylated	68439-51-0	5.00%	0.03045%	
			Crystalline Silica, Quartz	14808-60-7	5.00%	0.03045%	
			Guar Gum	9000-30-0	60.00%	0.36543%	
Super LC, 16/30	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00183%	
			P/F Resin	9003-35-4	5.00%	0.91429%	
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	17.73723%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.04470%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.08940%	
			Water	7732-18-5	50.00%	0.07450%	

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

			Acetyl Triethyl Citrate	77-89-4		0.0176687981%	
			Isotridecanol, Ethoxylated (TDA-6)	9043-30-5		0.0304527885%	
			Isotridecanol, Ethoxylated (TDA-9)	9043-30-5		0.0304527885%	
			Quaternary Ammonium Compounds bis[Hydrogenated Tallow Alkyl] Dimethyl Salts With Bentonite	68953-58-2		0.0304527885%	
			Water	7732-18-5		0.0304527885%	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	7/2/2011
State:	CA
County:	Los Angeles
API Number:	04-237-23051
Operator Name:	Occidental (OXY)
Well Name and Number:	C-651A
Longitude:	-118.139149
Latitude:	33.73973
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	6,240
Total Water Volume (gal)*:	98,490

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	75.86803%	
Super LC	BHI	Proppant	Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	6.02370%	
			Phenol Formaldehyde Resin	9003-35-4	5.00%	0.31050%	
			Hexamethylenetetramine	1009-7-0	0.01%	0.00062%	
Brady Sand	BHI	Proppant	Silicon Dioxide (Silica Sand)	14808-60-7	99.90%	14.47551%	
			Aluminum Oxide	1344-28-1	0.80%	0.11592%	
			Iron Oxide	1309-37-1	0.10%	0.01449%	
			Titanium Oxide	13463-67-7	0.10%	0.01449%	
Potassium Chloride	BHI	Clay Control	Potassium Chloride	7447-40-7	100.00%	0.01259%	
BF-7L	BHI	Buffer	Potassium Carbonate	584-08-7	50.00%	0.20739%	
Enzyme G-I	BHI	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00419%	
			Water	7732-18-5	97.00%	0.13549%	
GBW-5	BHI	Breaker	Ammonium Persulfate	7727-54-0	99.00%	0.04010%	
GW-3LDF	BHI	Gellant	Petroleum Distillate Blend	CBI	70.00%	0.35699%	
			Guar Gum	9000-30-0	40.00%	0.20399%	
High Perm CRB	BHI	Breaker	Ammonium Persulphate	7727-54-0	100.00%	0.00705%	
			Crystalline Silica Quartz	14808-60-7	15.00%	0.00106%	

Inflo 250W	BHI	Surfactant	Surfactants	CBI	80.00%	0.11506%	
			2-Butoxyethanol	111-76-2	20.00%	0.02876%	
			Methanol	67-56-1	30.00%	0.04315%	
Superset W	BHI	Activator	Methanol	67-56-1	40.00%	0.03600%	
			Nonyl phenyl polyethylene glycol ether	9016-45-9	60.00%	0.05400%	
XLW-32	BHI	Crosslinker	Methanol	67-56-1	90.00%	0.03609%	
			Boric Oxide	1303-86-2	20.00%	0.00401%	
XLW-56	BHI	Crosslinker	Glyoxal	107-22-2	30.00%	0.06562%	
			Sodium Tetraborate	1330-43-4	10.00%	0.02187%	
			Sodium Hydroxide	1310-73-2	5.00%	0.01094%	
			D-Glucitol	50-70-4	10.00%	0.02187%	
X-Cide 207	BHI	Biocide	5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00032%	
			2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00016%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00032%	
			Magnesium Chloride	7786-30-3	5.00%	0.00016%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00190%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00003%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00003%	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	7/28/2012
State:	California
County:	Los Angeles Offshore
API Number:	04-237-23047
Operator Name:	Thums Long Beach Co
Well Name and Number:	C-246
Longitude:	-118.13742
Latitude:	33.73992
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	6,101
Total Water Volume (gal)*:	106,176

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	76.60196%	
Superset-W, 55 gal drum	Baker Hughes	Activator	Methanol	67-56-1	50.00%	0.08601%	
			Poly (Oxyethylene) Nonylphenol Ether	9016-45-9	50.00%	0.08601%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00026%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00052%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00005%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00005%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00312%	
			Magnesium Chloride	7786-30-3	5.00%	0.00026%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00052%	
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00303%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00563%	SmartCare Product
			Water	7732-18-5	97.00%	0.18195%	
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	60.00%	0.00363%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	30.00%	0.00182%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.21606%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00360%	

			Water	7732-18-5	60.00%	0.21606%	
XLW-56, 330 gal tote	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.01852%	
			Glyoxal	107-22-2	30.00%	0.05557%	
			Sodium Hydroxide	1310-73-2	5.00%	0.00926%	
			Sodium Tetraborate	1330-43-4	10.00%	0.01852%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.02459%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.02459%	
			Guar Gum	9000-30-0	60.00%	0.29513%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.02459%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.14756%	
			Petroleum Distillates	64742-47-8	30.00%	0.14756%	
Super LC, 16/30	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00212%	
			P/F Resin	9003-35-4	5.00%	1.06050%	
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	20.57371%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.03964%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.07928%	
			Water	7732-18-5	50.00%	0.06607%	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
			2-Butoxy-1-Propanol	15821-83-7		0.0003935052%	
			Cured Acrylic Resin	Trade Secret		0.0018171106%	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	9/5/2011
State:	CA
County:	Los Angeles
API Number:	04-237-23033
Operator Name:	Occidental (OXY)
Well Name and Number:	C-245A
Longitude:	-118.138301
Latitude:	33.740001
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	6,507
Total Water Volume (gal)*:	135,902

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	75.86803%	
FlexSand LS	BHI	Proppant	Resin coated cellulose	Proprietary	97.00%	6.33482%	
Brady Sand	BHI	Proppant	Silicon Dioxide (Silica Sand)	14808-60-7	99.90%	14.47551%	
			Aluminum Oxide	1344-28-1	0.80%	0.11592%	
			Iron Oxide	1309-37-1	0.10%	0.01449%	
			Titanium Oxide	13463-67-7	0.10%	0.01449%	
Potassium Chloride	BHI	Clay Control	Potassium Chloride	7447-40-7	100.00%	0.01259%	
BF-7L	BHI	Buffer	Potassium Carbonate	584-08-7	50.00%	0.20739%	
Enzyme G-I	BHI	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00419%	
			Water	7732-18-5	97.00%	0.13549%	
GBW-5	BHI	Breaker	Ammonium Persulfate	7727-54-0	99.00%	0.04010%	
GW-3LDF	BHI	Gellant	Petroleum Distillate Blend	CBI	70.00%	0.35699%	
			Guar Gum	9000-30-0	40.00%	0.20399%	
High Perm CRB	BHI	Breaker	Ammonium Persulphate	7727-54-0	100.00%	0.00705%	
			Crystalline Silica Quartz	14808-60-7	15.00%	0.00106%	
Inflo 250W	BHI	Surfactant	Surfactants	CBI	80.00%	0.11506%	
			2-Butoxyethanol	111-76-2	20.00%	0.02876%	

			Methanol	67-56-1	30.00%	0.04315%	
XLW-32	BHI	Crosslinker	Methanol	67-56-1	90.00%	0.03609%	
			Boric Oxide	1303-86-2	20.00%	0.00401%	
XLW-56	BHI	Crosslinker	Glyoxal	107-22-2	30.00%	0.06562%	
			Sodium Tetraborate	1330-43-4	10.00%	0.02187%	
			Sodium Hydroxide	1310-73-2	5.00%	0.01094%	
			D-Glucitol	50-70-4	10.00%	0.02187%	
X-Cide 207	BHI	Biocide	5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00032%	
			2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00016%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00032%	
			Magnesium Chloride	7786-30-3	5.00%	0.00016%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00190%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00003%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00003%	
<p>* Total Water Volume sources may include fresh water, produced water, and/or recycled water</p> <p>** Information is based on the maximum potential for concentration and thus the total may be over 100%</p> <p>Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)</p>							